DOCUMENT RESUME

ED 468 360 HE 035 213

TITLE	Priorities for California Educational Technology Funding. Commission Report.
INSTITUTION	California State Postsecondary Education Commission, Sacramento.
REPORT NO	CPEC-R-02-10
PUB DATE	2002-07-00
NOTE	57p.
AVAILABLE FROM	California State Postsecondary Education Commission, 1303 J Street, Suite 500, Sacramento, CA 95814-2938. Tel: 916-322-9268. For full text: http://www.cpec.ca.gov.
PUB TYPE	Reports - Research (143)
EDRS PRICE	EDRS Price MF01/PC03 Plus Postage.
DESCRIPTORS	Agenda Setting; Educational Finance; *Educational Technology; *Financial Support; *Higher Education; Needs Assessment; *Policy Formation; *Resource Allocation
IDENTIFIERS	*California

ABSTRACT

This report responds to a mandate from the California Assembly to convene a working group to facilitate the development of statewide funding priorities for educational technology in higher education. The findings from this study will help policymakers to determine the allocation of scare state resources. Six working group meetings, additional discussions and dialogue with practitioners in California and the rest of the United States, and discussions with researchers, consultants, and students were supplemented by a comprehensive survey of approximately 450 California postsecondary institutions of higher education. The California Postsecondary Education Commission, based on the findings of this study, recommends that the state give the highest priority to funding projects and initiatives that provide access to undergraduates and that reflect collaboration between the public schools and segments of higher education. In addition, the Commission has identified these areas as those on which the state should focus: (1) teacher preparation, especially in science and mathematics; (2) workforce training; (3) existence of a common basic infrastructure; (4) effective online or distance learning; (5) leverage of other public and private resources; and (6) educational services to learners who are geographically isolated or who have the greatest needs. Three appendixes list working group participants, describe strategic planning for educational technology and higher education, and summarize the results of a survey on distance learning. (SLD)

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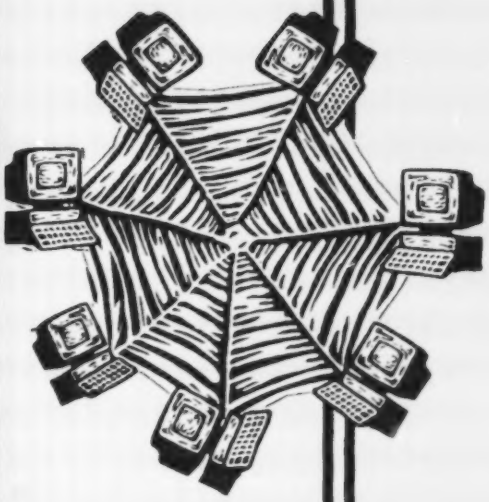

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CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

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JULY 2002

COMMISSION REPORT 02-10

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Summary

This report, entitled *Priorities for California Educational Technology Funding*, responds to Assembly Bill 1123 (Cardoza), which directed the California Postsecondary Education Commission to convene an intersegmental working group to facilitate the development of statewide funding priorities for educational technology in higher education. The report contains important findings that will assist policymakers in determining the allocation of scarce state resources.

In addition to over six working group meetings during 2001-02, additional discussions and dialogue occurred with practitioners across the State and nation, including the Commission on Technology in Learning and discussions with researchers, consultants, and students involved in various aspects of use and application of technology in education.

The Commission also undertook a comprehensive survey of approximately 450 California postsecondary institutions of higher education for the purpose of gathering baseline information on distance learning programs in California. This information informed the Commission recommendations encompassed in this report and will serve, in addition, as a beginning source of data to assist in planning for the future.

The Commission adopted this report at its meeting of July 22, 2002. It has been be added to the Commission's Internet website -- www.cpec.ca.gov -- and will be electronically accessible to the general public.

Additional printed copies of this report and other Commission documents may also be obtained by e-mail at PublicationRequest@cpec.ca.gov; or by writing the Commission at 1303 J Street, Suite 500, Sacramento, CA 95814-2938; or by telephone at (916) 322-9268.

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Priorities for California Educational Technology Funding

A Report to the Governor and Legislature in Response to Assembly Bill 1123

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
1303 J Street • Suite 500 • Sacramento, California 95814-2938

COMMISSION REPORT 02-10
PUBLISHED JULY 2002

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Executive Summary

Background

This California Postsecondary Education Commission report, *Priorities for California Educational Technology*, responds to Assembly Bill 1123 (Cardoza) (Chapter 467, Statutes of 2000). The legislation established the guiding goal and principles for the use of educational technology in California postsecondary education. It also directed the Commission to convene an intersegmental working group to advise on the development of statewide funding priorities for educational technology in higher education.

Implementation

The Commission convened an intersegmental working group comprised of segmental representatives; national leaders in organizational, fiscal, educational, and legal aspects of educational technology; representatives of the administration and legislature on a periodic basis; and corporate and industry representatives.

In addition to over six working group meetings during 2001-02 and informal interaction with Commission staff throughout the working group's tenure, additional discussions and dialogue occurred with practitioners across the State and nation, the Commission on Technology in Learning -- a California public school initiative -- and engagement in other focused efforts with researchers, consultants, and students involved in various aspects of use and application of technology in education.

The Commission also undertook a comprehensive survey of approximately 454 California postsecondary institutions of higher education for the purpose of gathering baseline information on distance learning programs in California. Overall, 68% of the public and private institutions polled responded to the survey. That information will serve not only as a beginning source of data to assist in planning for the future but also to inform the Commission recommendations to State policy makers regarding distance learning funding priorities.

Observations

Changing student needs and expectations, as well as the demands of an increasingly competitive marketplace, are driving the development and expansion of educational technology in all aspects of higher education, particularly in distance education and online learning programs. Furthermore, off-campus education will continue to grow as California institutions respond to the needs of California students, businesses, industry, and government who are best served by venues other than traditional campus sites.

The broad acceptance of the Internet has made possible a new vehicle for distance education that is being exploited by traditional universities and new for-profit ventures across the country and around the globe.

California institutions are responding to this phenomenon in different ways. Residential campuses have been networking dorm rooms with high-speed links in order to enhance classroom instruction. At the other end of the spectrum, several institutions are using the worldwide reach of the Internet to enroll students who may never set foot in a traditional classroom. Increasingly, students have become accustomed to a technology and media rich environment, and they expect a similar educational experience from California institutions of higher education.

Complementing these opportunities are several trends that encourage a rethinking of when, where, and how learning takes place. In particular, distance learning is one way the State can meet rising demands of lifelong learners and career changers. A growing population of graduate students and adult learners are increasing the median student age and creating a pool of students who need educational services but often find it difficult to attend one of our campuses.

The use of educational technology for distance learning provides appropriate access to higher education to all citizens. Distance learning is and will play a significant role in responding to State and citizen needs. In addition, through the use of educational technology for distance learning, there will be a blurring of traditional geographic boundaries.

Now that the State and its institutions of higher education are well on their way to establishing a robust technology infrastructure that will strengthen the higher education system, the State and its institutions must ensure that their equipment and infrastructure remain current with emerging technology. This will require both an ongoing institutional commitment, as well as a stable source of State funding to help institutions address their recurring technology costs.

Implications

The efficient and effective use of financial resources in support of educational technology is critical to ensuring California's guiding principle and policy of access to educational opportunity at affordable prices. Absent such efficiency and effectiveness, the State's return on investment will be difficult to realize. The Commission's recommendations in this report focus not only on a set of budgeting priorities but also have been advanced with a focus on the need for improved data, an identification of accrued benefits, and increased emphasis on accountability and results.

Without the implementation of the Commission's recommendations the State will continue to lack a cohesive plan for educational technology in postsecondary education, its investment in technology will not produce the results desired, nor will it know if benefits have accrued; in short, there will be a continued lack of data to inform policy makers on trends,

areas of need or opportunity, and the impact of the investment on students and institutions.

Recommendations

The Commission's recommendations on Educational Technology are:

1. Responsive to the legislative charge for budgeting priorities;
2. Integral to the State interest;
3. Important in Advancing the Commission's Public Agenda; and
4. Intended, ultimately, to impact, directly or indirectly, current and future generations of students in removing barriers to high quality and affordable educational opportunities.

To the above end, the Commission believes that its recommendations are substantive, achievable, and measurable in ensuring the incorporation of educational technology into the larger fabric of an institution's mission. The recommendations, once implemented, will enable the State to maintain its investment in higher education's use of technology. Furthermore, implementation of the recommendations will target funding support for those strategies and programmatic areas that are considered to be in the State interest and helping to educate current and future generations of learners, regardless of their geographic location or personal circumstance.

The Commission recommends that the State give highest priority funding to projects and initiatives that address the following two areas:

1. Due to Tidal Wave II and the need to accommodate enrollment needs, particularly at the undergraduate level, priority funding should support those initiatives that incorporate educational technology in the distribution of educational services at the undergraduate level to provide access and accommodate growth.

2. California should fund those initiatives that reflect collaborations between the public schools and higher education segments to ensure that all students regardless of their geographic location or school have access to a curriculum that will adequately prepare them for college and university admission and the workforce.

Further, the Commission offers the following as specific and essential priorities when budgeting decisions are made on initiatives submitted by the higher education segments:

- **Focus on teacher preparation programs, particularly those efforts which center on mathematics and science teacher training.**

- **Focus on workforce training and on improving the linkages between education and the needs of the new economy.**

- **Have a basic infrastructure that can be utilized by public higher education and K-12.**

- **Provide support for the most effective online or distance learning efforts by institutions or segments, and encourage distance-learning providers to collaborate with or model these programs and finance those online learning efforts that build on existing capacity, and can scale efficiently.**

- **Use State resources to leverage other sources of funds, public or private that can create and sustain educational technology initiatives that are consistent with the State's educational goals.**

- **Foster collaboration among the segments and K-12 that increases productivity in instructional and student services activities such as the *Digital California Project*.**

- **Prioritize according to delivery of educational services to learners in geographic areas of the state with the highest need, and according to those learners who have the greatest needs and demonstrated demand.**

1 Priorities for California Educational Technology Funding: A Report in Response to AB 1123

Background and introduction

This report responds to Assembly Bill 1123 (Chapter 467, Statutes of 2000) that established the guiding goal and principles for the use of educational technology in California postsecondary education. Through AB 1123, the Legislature declared that access to a high quality education is the primary goal for the use of educational technology in higher education, and that all students in California's public schools and colleges and all adults in the state shall have access to educational opportunities for which they are qualified, regardless of their income level, geographic location, or the size of the school they attend.

AB 1123 also directed the California Postsecondary Education Commission to convene an intersegmental working group to develop statewide funding priorities for educational technology in higher education.

The California Postsecondary Education Commission and other observers have estimated that a minimum of 714,000 additional students, in excess of the number of those enrolled in 1998, will need to be educated by California's colleges and universities by the year 2010. As regards postsecondary education, the Legislature has also found that:

- New informational technologies and other related innovations can provide promising education opportunities for individuals who are not being served currently, particularly those without easy access to traditional campus-based instruction or for whom traditional courses are a poor match with learning, education, or training needs.

- Many learners can benefit from nontraditional postsecondary education opportunities and appropriate support services, including students seeking basic or technical skills or those experiencing education beyond high school for the first time, and those limited by time and place constraints, and;

- The need for high quality, nontraditional, technology-based education opportunities is great, as is the need for measures of educational progress and competency attainment that are valid and widely accepted. The advancement of these measures of progress and competency attainment will be more likely through the coordinated efforts of agencies and institutions working with State assistance, statewide coordination, and oversight.

Establishing the AB 1123 work group

In response to AB 1123, and consistent with its statutory planning and coordination functions and responsibilities identified in Section 66900 of the California Education Code, the California Postsecondary Education Commission convened an intersegmental working group during 2001 and part of 2002 to examine State-funding priorities for educational technology consistent with the institutional missions of the segments of higher education (members of the working group and their affiliations are listed in Appendix A).

A history of involvement

The Commission's response to AB 1123 reflects the Commission's history of involvement and commentary on technology in higher education. Commission reports have called consistently for the preparation and maintenance of a strategic plan for each public segment of higher education and recommended development of processes for determining shared goals, identifying priorities for cooperative activity, estimating costs, and seeking joint funding for cooperative projects.

The Commission's work recognizes that, in the context of public education and State supported funding, employing technology is not a goal. Rather, it should be viewed as a means of achieving or addressing articulated statewide educational goals and needs. Only then can California begin to examine, evaluate, and prioritize technology's role in postsecondary education.

Past Commission work like *Providing for Progress* (CPEC 00-01) has established that California's challenges are several, including burgeoning enrollment demand growth and a growing need for technology skills in employment. Over the next decade and beyond the economic well being of the State will be directly affected by the effectiveness with which California responds to the various challenges it now faces. Effective response will be guided not by ties to partisan political viewpoints, but rather by recognition of the need to ensure that all of California's citizenry are provided with the educational tools, skills and opportunities necessary to ensure their active participation and contribution to the economic health of the State.

While technology can provide a means of addressing traditional needs in different ways, and also provide new opportunities and approaches for addressing challenges, policymakers must be mindful that new technology is not the answer to every educational problem. Technology and its use to deliver new models of education will face many challenges. Accreditation, intellectual property rights, changing faculty roles, new pedagogy, staff development, training and support, courseware development, and student support issues all enjoy nationwide attention and controversy, as a newly emerging field yields a variety of thoughts, models, experiments and criticisms.

The Commission's 2002-2003 public agenda

Addressing educational technology is also consistent with the California Postsecondary Education Commission's Public Agenda for the year 2002-2003. In that document, the Commission began examining data and identifying critical issues facing higher education in the State. It outlines a set of priority activities for the State under four thematic areas identified by the Commission: (1) Growth and Access; (2) Preparation for Postsecondary Education; (3) Baccalaureate Degree Attainment; and (4) Workforce Preparation/Economic Development.

Effective use of educational technology is an integral part to meeting each of these priorities. Increasing numbers of students can be served in new ways and in new places. These include traditional college-going students, those traditionally underserved, adult and continuing education students including those seeking workforce skills. In addition, technology assists the educational sector in management of instructional and research activities that lead to increased efficiency in the use of State resources, and provide a means to measure student performance and outcomes.

National and State efforts underway

Within California, the past several years have seen attempts to establish a California Virtual University, and successes and failures with public private partnerships and collaborative infrastructure activity. Instruction and learning aided by various forms of technology holds great promise, but in the context of public funding, must meet accountability standards as well. Importantly, those accountability standards should be the same as those to which traditional educational delivery is held.

Nor is the interest in educational technology limited to California. There are a variety of national and international efforts underway that address these challenges including varying financial models, institutionally based profit and non-profit ventures, collaborative and cooperatives both within states and regions, and private providers of instructional and course management tools.

AB 1123 work group discussions

The intersegmental work group convened by the Commission to address educational technology. To begin its work, the intersegmental working group convened by the Commission first identified some refinements for the overarching goal of providing postsecondary access based on the key principles that time and place issues should not impede those seeking a postsecondary education experience, and that students with work, familial, or other obligations should be unhampered in accessing educational services. Additionally, the State's goals should be to:

Refining California's goals in using educational technology

- Improve student performance at the K-12 and higher education levels by reducing the need for remediation and decrease the time for completion;
- Accommodate an increasing population of students in the traditional college-going age group;

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- Accommodate demographically distinct populations that have not participated traditionally in postsecondary education;
- Accommodate workforce preparation, continuing education, and lifelong learning contributing to economic development given that increasing numbers of students will be seeking these skills due to workplace demands; and
- Increase the effective use of State resources devoted to instructional activities across all segments of higher education.

Principles to guide the development of budgeting priorities

In the establishing legislation, the intersegmental working group was directed to observe the following principles to guide the development of priorities and the proposed expenditure of State revenues on technology infrastructure and applications:

- Development of a statewide infrastructure that provides compatible connectivity between all levels of education to reduce redundancy and increase efficiency.
- Adherence to nationally and internally accepted protocols and standards.
- Assurance that the standards for course and program quality applied to distance education are rigorous in meeting accreditation standards, Universal Design Standards, and standards currently applied to traditional classroom instruction at higher educational institutions in the areas of course content, student achievement levels, and coherence of the curriculum.
- Collaboration between the private sector and educational institutions in the availability and use of technology in low-performing schools and underserved areas.
- Collaboration across departments, institutions, states, and countries in the use of technology.
- Use of technology to contain costs, improve student outcomes, and enhance quality in instructional and non-instructional functions, such as student services, libraries, and administrative support.

The current status of segmental educational technology initiatives and collaboration

Based on an examination of segmental educational technology initiatives and collaborative activity presented above, the working group found the following as the current status of investment and structure of educational technology in California:

- Educational technology is an ever-growing component of both administrative and instructional activity in all segments of higher education and will increase in use;

- There is a substantial investment by the State and all education segments in educational technology activities;
- Barriers to access for certain educational services exist for certain geographic areas throughout the State;
- There is a lack of data and information concerning the total costs and expenditures regarding infrastructure and applications for the State's educational technology efforts;
- There is no understanding of the benefits which have been achieved as a result of the State's investments in educational technology;
- Many of the educational technology efforts are either campus or segment-based and lack cooperation and coordination among educational segments,
- There is some level of collaboration between higher education and K-12, such as the Digital California Project, that could be a model for other educational technology efforts;
- Not all of the segments have an integrated, coordinated, and comprehensive system for reviewing and assessing proposals for new investments in educational technology with clearly articulated goals, objectives, and measures of accountability.

2 Educational Technology

Although Assembly Bill 1123 does not define "educational technology," it does refer to budgeting priorities for infrastructure and applications. In this report, infrastructure primarily refers to networks, servers, and the supporting hardware and software that allows for connectivity and delivery of applications on or between campuses and school sites. Applications refer primarily to the programs and services delivered and in some cases the system used for delivery of instruction, such as courseware for internet-based courses, student support services, library services, and administrative functions. The funding priorities suggested below recognize that these two distinct assets may require different forms and levels of investment by the State in some of those assets.

California does not currently operate under a State technology plan to guide the use and funding of technology in education. Within higher education funding has been guided primarily by the goals and plans of each public segment, or by individual initiatives advocated by executive or legislative bodies. While some degree of intersection certainly exists between the State's needs and the focus of the higher education community's efforts, the focus of funding and continuing support will likely continue to fluctuate as administrations change, and as the effects of term limits on the Legislature are realized.

A well-developed State plan could shape expenditures on technology, direct the focus of professional development initiatives, and guide research on technology and its uses in educational settings. While the focus of AB 1123 is not the development of such a plan, its absence may in part explain some of the parallel and/or duplicative efforts evident within the higher education community, as well as the challenge which higher education has faced in securing sustained funding.

In its 1989 report, *Technology and the Future of Education: Directions for Progress (89-27)* the Postsecondary Education Commission recommended that each segment of higher education, the State Department of Education and schools and school districts should prepare and maintain a strategic plan for information technologies consistent with, and in support of, their missions. Specific elements recommended for inclusion were a description of existing information technology resources and uses, a projection of future needs, strategies for meeting those needs, and an analysis balancing costs against larger institutional and societal goals.

The Commission has also provided an overview of the various technology initiatives at the three public systems of higher education up to that point in its 1997 report, *Coming of Information Age in California Higher Education* (97-). In the table below, the California Postsecondary Education Commission provides an update on the K-Higher Education initia-

tives as well as collaborative efforts between and between K-12 and Higher Education. A complete description of the initiatives and collaboration appears in Appendix B.

DISPLAY 1 *Educational Technology Initiatives and Collaboration Between and Among and Between K-12 and Higher Education*

Initiative and Collaborative Activity	Function
Digital High School Program	The Digital High School Program provides assistance to schools serving students in grades 9-12 so that these schools may install and support technology, as well as provide staff training. The installation support is provided through the Technology Installation Grant, a one-time $300 per student amount.
Education Technology Grant Program for High Schools	Administered by the Office of the Secretary of Education. Provides one-time grants to public school districts and charter schools for acquisition of computers for instructional purposes. The funds are intended to supplement existing local, state, and federal education technology funds, including *Digital High School* funds.
Digital California Project (DCP)	DCP provides access to high-speed, high bandwidth Internet that enhances the speed, quality, and reliability, of on-line education materials. Allows teachers and administrators to participate in professional development and education leadership courses as well as access and use of state of the art teaching resources. Designed to link K-12 classrooms, school sites, districts and counties statewide as well as connect K-12 with higher education throughout California. The University of California has the leadership role in overseeing the effort and administering funds for this project.
California Community Colleges: Technology and Telecommunications Infrastructure Program (TTIP/Technology I)	Focus on instructional delivery, with the articulated goals of 1) student "access" – to include instruction and student support services, and 2) student "success" - in both educational and career goals. Include a detailed cost estimate for implementation, with a specific model for estimating cost, the Total Cost of Ownership funding concept (TCO).
California State University: Integrated Technology Strategy (ITS)	Planning/implementation process that guides the CSU's technology investments. Identified achievement of four outcomes as goals for the use of technology; personal productivity, excellence in learning and teaching, quality of the student experience, administrative productivity and quality.
UC Teaching, Learning, and technology Center (TLtC)	Provide system wide visibility of campus and faculty efforts in the development and use of teaching and learning technologies. Intercampus collaborations in incorporating teaching and learning technologies are supported through a grants program.
UC College Prep Initiative	Offer college preparatory courses to California high school students though distance learning technologies. UCCP courses are acquired from existing curriculum (publishers/commercial firms, other educational institutions), developed by UC faculty, developed by high school faculty in consultation with UC faculty, and/or provided as a result of other partnerships.
California Digital Library	Collaborative effort of the ten UC campuses, organizationally housed at the University of California Office of the President, responsible for the design, creation, and implementation of systems that support the shared collections of the University of California.

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Multimedia Educational Resource for Learning and On-line Teaching (MERLOT	MERLOT is a free and open resource designed primarily for faculty and students of higher education for sharing online learning materials, papers, tutorials and tools. Links to online learning materials are collected here along with annotations such as peer reviews and assignments.
CENIC (Corporation for Education Network Initiatives in California)	CENIC a not-for-profit corporation with the mission to advance the use of communications technology in research and education at California's universities. CENIC is responsible for planning, implementing and managing the DCP network.
4CNET: California State University and California Community Colleges	4CNet provides telecommunications service and connectivity to support the educational mission of the California State Universities and the California Community Colleges. The network supports a combination of data, video and voice communications for its participants. Both CSU and the CCC provide ongoing funding for 4Cnet.
California Statewide Master Agreement for Resources in Technology," (C-SMART).	Negotiates to create opportunities for California public schools and districts to participate in discount buying and licensing of instructional technology resources. The Foundation for the California Community Colleges (FCCC) entered into an agreement with C-SMART to extend its cooperative purchase program to include California public K-12 schools. The two organizations are jointly developing a new web site for California K-12 schools and districts. The Foundation funds the operation of its organization through the generation of self-supporting revenue from its activities, while C-SMART receives State funding to support its efforts.
California Virtual Campus	Initiative within the California Community Colleges. The core of the CVC is the electronic catalogue for distance education, which features more than 3,800 courses listed across public and private segments of California higher education. 132 colleges and universities participate in 173 programs of study. The California Virtual Campus does not grant degrees or certificates. Online courses are supported locally at the institutions and by the CVC's license agreements for course management software provided by WebCT and Blackboard.

Distributed learning

Distance education is the term that has been used most commonly in the past to describe education or training courses delivered to remote (off campus) locations via audio, video, or computer technologies. As the use of technology to deliver education and learning has expanded and grown, and as campuses have starting using these courses to enhance programs for on-campus students, the term *distributed learning* has become more popular and may be more descriptive of current activities. Between 1998 and 2002 it is reported that student enrollments in courses delivered at a distance increased from 500,000 to over two million and 85% of two and four year campuses reported that they planned to offer courses at a distance in 2002 (Market Learning Space).

The promise of distance or distributed learning is the ability to overcome time and place barriers to education and therefore provide greater access to educational services for traditional and nontraditional students alike. Courses and programs delivered at a distance provide access to education for students who live in areas where there are few or no educational facilities to meet their needs. Such programs can also help students who

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may live near a campus but who, due to career and or family responsibilities, cannot attend on a traditional campus schedule.

In the last two years, the use of distance or distributed education to deliver classes or programs has increased almost exponentially as institutions, and states have developed various forms of distance learning opportunities and organizations. This section of this report examines the opportunities that distance education could provide in meeting the State's access needs. Important questions for the State of California include: (1) how many current students are enrolled in courses delivered at a distance, (2) what is the current capacity in existing courses and programs that could be used to meet future student demand, (3) is there current unmet demand for distance courses and programs, and (4) can distance education provide an opportunity for those students who have traditionally been under-represented in higher education?

Systematic collection of information about distance education

The Postsecondary Education Commission and the intersegmental working group found a need to systematically collect and report information on this important and growing method of providing education. It is currently unclear how many students in California are enrolled in distance courses and a complete statewide inventory of courses and programs does not exist.

Further review and analysis of coordinated efforts in other states and regions of the country might also provide suggestions for future directions and efforts in California. It is recommended that the State: (1) Identify unmet educational demand by determining where there are specific student segments not currently being served by higher education, and (2) stimulate institutions or segments to create online courses and programs that respond specifically to that population. An analysis of unmet demand for educational services may help the State set priorities based on both the level of interest of the citizens and the constraints they cite as limiting their access to education.

In addition to overcoming barriers of place and time, distance or distributed education can also be cost effective when it is delivered at scale. The underlying assumption is an expectation that course costs per student decrease as enrollment increases. Large distance universities, such as the various Open Universities operating in several countries, have demonstrated that this is the case. Course development and infrastructure costs per student decline with each added enrollment.

Because online learning can theoretically accommodate more students per course than a traditional classroom given the same instructional input, it sometimes has been assumed that institutions can not only save but also, in some cases, make money by using online instruction. Cost studies of technology mediated instruction by both the Sloan Foundation (www.sloan.org/programs/edu_asynchronous.shtml) and the Technology Costing Methodology (TCM) project revealed however that most univer-

sities are not making money from their online ventures, and in some cases they are losing money.

For this reason, some campuses have terminated their online programs, while others have scaled back dramatically. The general conclusion of the TCM project is that technology mediated instruction is more expensive than face-to-face instruction, while other commentators have concluded that traditional courses are cheaper than online equivalents when teaching in small groups.

The difference in the assumed cost savings of online instruction and reality is partly explained by institutions' failure to understand the necessary components that allow for online instruction. Clearly infrastructure is only one of the many parts to delivering one course to a group of students. Course development and design, marketing, program coordination, administrative overhead, IT help desk, and web administration are some of the components of online delivery that either do not exist for traditional classroom instruction or impose a comparable or lower cost than online delivery.

There is evidence that online learning can reduce costs of instruction, and that savings is brought about by the particular design of the courses delivered. The Pew Grant Program in Course Redesign projects an annual savings of more than $3.5 million as result of redesigning just 30 courses (www.center.rpi.edu/PewGrant.html). The Pew Projects suggest that the more institutions design online courses and programs that resemble the traditional campus models, creating what they refer to as the bolt-on model, the more the costs will resemble or exceed traditional campus costs.

This suggests possible funding priorities for the State. Distance Education becomes cost effective when large numbers of students are enrolled. Collaboration among institutions and segments in creating and delivering courses statewide could provide the critical mass of students necessary to provide needed scale as well as provide added capacity for the State. An inventory of existing courses and programs could provide a basis for discouraging unnecessary duplication and encourage development of courses in areas of unmet need.

California may wish to consider developing measurements of cost effectiveness and accountability to compare various means of educational delivery. It is not suggested the State should dictate how the institutions should deliver instruction, but only to evaluate the outcome of investment. Future funding decisions would be enhanced if both institutions and State control agencies were able to gain a better understanding of the costs and outcomes associated with various means of providing educational services.

Distance education is not a so-called "silver bullet" and will not provide the answer to all the State's needs and challenges. It can, however, pro-

vide part of the answer to the State's need for additional capacity, it can meet the needs of certain segments of students who cannot attend a traditional campus, and it can provide a cost effective means of adding capacity where courses and programs can be delivered to large numbers of students.

Across the nation, there have been a variety of national and international efforts at on-line learning ventures including virtual universities. These are institutionally based profit and non-profit ventures, collaboratives and cooperatives both within states and regions and private providers. These efforts are regularly in the headlines of business and higher education journals, creating an impression that everyone is successfully engaging in some form of successful on-line venture.

In the Commission's review of some of the more prominent efforts, it was found that there are very similar activities, challenges and even obstacles being faced by even the most successful efforts. These efforts have seen both successes and failures. Some of the failures are caused by poor planning, a failure to understand the targeted markets, and misapplication of the technology given the organization's mission.

Although it is almost certain that institutions of all types will enhance and or increase their distance education programs, it is important to note that this form of delivery remains just one component of instruction. The Commission's survey on distance learning revealed that only 33% of the institutions responding indicated a student could complete a degree or certificate by taking only distance learning courses. Students currently take both traditional and on-line courses in order to complete a program or degree.

Additionally, research at both the State University and community colleges shows that, while distance education is growing, there is even greater growth in hybrid courses, i.e. traditional courses that incorporate technology mediated instruction. It is recommend that the growth of hybrid programs be encouraged. Such programs provide a means for students to complete their courses of study efficiently and relieve pressure on existing physical facilities and increases capacity of these facilities.

Statewide efforts in online learning

Distance education efforts in California higher education are diverse and long standing. The size and demography of the state and the financing, governance, and missions of public higher education have created unique opportunities for institutions and the State in providing educational services beyond the traditional classroom model. For example, of the California institutions responding to a California Postsecondary Education Commission survey on distance learning, 88% indicated they plan to expand their distance learning programs in the future. (A summary of the Postsecondary Education Commission survey on California distance learning efforts can be found in Appendix C of this report).

The California Virtual University program was created in 1998 and has since evolved into the California Virtual Campus initiative within the California Community Colleges. The core of the CVC is the electronic catalogue for distance education, which features more than 3,800 courses listed across public and private segments of California higher education. Some 132 colleges and universities participate in 173 programs of study. However, the California Virtual Campus does not grant degrees or certificates. Online courses are supported locally at the institutions and by the CVC's license agreements for course management software provided by WebCT and Blackboard.

The CVC is a very similar to other virtual universities in that the California Virtual Campus, rather than create and administer the courses, provides a catalogue of courses from which students can select. This "clearinghouse" approach invites collaboration among the public and private segments in California, and possibly creates some efficiency in instructional delivery because of its vendor arrangements with WebCT and Blackboard.

3 Conclusion and Recommendations

In presenting the recommendations called for in Assembly Bill 1123, the Commission has drawn upon its own reports, work being undertaken nationally, discussions held by the intersegmental work group, and other sources of information about the important topic of educational technology. Therefore, the recommendations listed below are those of the Commission in response to the mandate of AB 1123.

Information the State needs to guide its investment in educational technology

In order to guide its investment in educational technology, it is recommended the State engage in some specific activity to inventory current costs, benefits, and the provision of educational technology in higher education. Absent such data and information, policy makers will be hampered in their ability to determine the best use of resources.

Specifically, to complete this initial data gathering phase, California should:

1. Develop clearly articulated goals, objectives, and measures of accountability for educational technology initiatives in conjunction with each public higher education segment. (A potential model to adopt is the *Integrated Technology Strategy* platform implemented by the California State University.)

2. Collect and assess data concerning the total costs and expenditures on both the infrastructure and applications for its educational technology investments.

3. Identify the benefits that have been achieved as a result of its investments in educational technology, particularly those benefits associated with wider access to educational services.

4. Identify where there is greater capacity within the institutions or segments to accommodate additional online learners and the degree to which capacity can be increased.

5. Develop a mechanism where K-12 and higher education can discuss and present their respective educational technology plans to determine if there is potential for collaboration. A possible venue for such a process is the Digital California Project Steering Committee.

Principles, findings and recommendations for budgeting priorities for educational technology

Based on the State's goals for educational technology and the Postsecondary Education Commission's findings of past and current initiatives, the Commission now recommends that budgeting priorities for educational technology in higher education be based on the following **guiding principle**:

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The State should place priority on those projects that incorporate educational technology into the larger fabric of an institution's mission. This infusion recognizes that educational technology is not separate from the general activities that are integral to instruction, research, and student services, but is interwoven into those efforts.

The Commission recommends that the State give highest priorities for State funding of educational technology initiatives that address the following two areas:

1. Due to Tidal Wave II and the need to accommodate enrollment needs, particularly at the undergraduate level, priority funding should support those initiatives that incorporate educational technology in the distribution of educational services at the undergraduate level to provide access and accommodate growth.

2. California should fund those initiatives that reflect collaborations between the public schools and higher education segments to ensure that all students regardless of their geographic location or school have access to a curriculum that will adequately prepare them for college and university admission and the workforce.

The following areas while not in priority order, are considered by the Commission to be additional essential priorities as budgeting decisions are made on initiatives encompassing educational technology submitted by the higher education segments:

- **Initiatives that focus on teacher preparation programs, particularly those efforts which center on mathematics and science teacher training**. This recognizes that the dual impact of burgeoning public school enrollment and class-size reduction has generated a huge demand for new teachers -- a demand as high as 250,000 to 300,000 teachers over the next 10 years. Online learning is well suited for teacher training because it allows access to credential programs for those who are prospective teachers but are bound by work demands, time and place restrictions.

- **Initiatives that focus on workforce training and on improving the linkages between education and the needs of the new economy**. This focus recognizes the growing importance of the need for California's higher education system to integrate workforce competencies in its educational mission for the 21st century.

- **Initiatives to ensure that the basic infrastructure can be utilized by public higher education and K-12**. There should be an assurance of continuous renewal and replacement of these assets *if* the segments and K-12 collaborate on developing applications and services to be used by both. In addition, those applications should

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demonstrate that they are broadening access to education and ensuring compatibility between and among the segments of higher education.

- **Initiatives to support the most effective online or distance learning efforts by institutions or segments, encouraging distance-learning providers to collaborate with or model these programs and finance those online learning efforts that build on existing capacity, and can scale efficiently.**

- **Initiatives that leverage State resources with other sources of funds, public or private that can create and sustain educational technology initiatives that are consistent with the State's educational goals.**

- **Initiatives among the segments and K-12 where collaboration increases productivity in instructional and student services activities such as the *Digital California Project*.**

- **Prioritization according to delivery of services to learners in geographic areas with the highest need for educational services and the greatest needs and demonstrated demand.**

Appendix A AB 1123 Working Group Participants by Name and Affiliation

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Appendix B Strategic Planning for Educational Technology: K-12 and Higher Education

THIS SECTION OF THE REPORT summarizes some of the strategic planning activities and individual initiatives undertaken by the various segments of higher education since that time, as well as providing some history of the funding which has accompanied these efforts. This review should provide an idea of the similarity in needs, goals, and interests across all education segments, as well as highlighting some of the positive results of the State's investment in educational technology.

1. Kindergarten-12

While AB 1123 directs the Commission to focus upon higher education, it is important to examine the intersection of strategic planning activity and legislative actions between higher education and K-12. A student's academic transition from K-12 to higher education can be eased by their familiarity with educational technology in their pre-college years. Understanding how students use and benefit from technology in K-12 can inform policymakers and the higher education community in developing educational technology initiatives. A brief review of key legislative and budgetary actions reveals both collaborative and parallel efforts in the planning and funding of technology in education.

AB 598 (Chapter 830, Statutes of 1999) created the Commission on Technology and Learning (CTL), an advisory body to the State Board of Education made of up of elementary, secondary, postsecondary education representatives, as well as private sector participants, and required every school district seeking education technology funding from the California Department of Education to have, as a prerequisite of funding, a local technology plan in place by January 1, 2002. The CTL is to provide policy recommendations regarding statewide planning and a statewide master plan for the use of education technology, dissemination of technology resources, and development of guidelines for statewide evaluation of all technology, telecommunications, and distance learning programs that directly and indirectly affect students in grades K-12.

The Commission, as specifically directed in the legislation, has developed and distributed *Education Technology Planning: A Guide for School Districts* to assist school districts in developing their local technology plans (www.cde.ca.gov/ctl/edtechplan.pdf.) Due to the State's current fiscal condition, further meetings of the CTL have been indefinitely postponed. The legislation provides that the CTL will terminate and have no further duties on January 1, 2003.

Assembly Bill 64 (Chapter 326, Statutes of 1997) established the Digital High School Program, which provides financial assistance to high schools for technology installation, ongoing support, and staff training. The installation support is provided through the Technology Installation Grant, a one-time award of $300 per student. Upon completion of the Installation Grant, schools become eligible to receive a Technology Support and Staff Training Grant, an ongoing $45 per student per year. All grant funding is contingent upon local matching funding as well as state level budget appropriation. The goals of the Digital High School Program are: (1) that every classroom will be connected to the Internet by the end of the Technology Installation Grant and (2) that technology will be integrated into the curriculum to enhance teaching and learning.

AB 2882, Chapter 78 (Statutes of 2000) established the Education Technology Grant Program for High Schools, administered by the Office of the Secretary of Education, which provides one-time grants to public school districts and charter schools for acquisition of computers for instructional purposes. The funds are intended to supplement existing local, State, and federal education technology funds, including Digital High School funds. The 2000-2001 Budget provided $175 million in one-time funds for the ETGP for grades 9-12 only and $6.5 million for the Education Technology Professional Development Program (ETPDP). The ETPDP program is administered by the California State University (CSU) and provides teachers with professional development training on how best to integrate the use of technology into the classroom and curriculum. The ETPDP program has been provided with a total of $25 million since its establishment. The Governor's 2002-2003 budget includes $6.5 million base reduction for this program.

The State has also created and funded the Digital California Project (DCP), an effort to establish a K-12 statewide network. This statewide network is complementary to ongoing K-12 technology infrastructure efforts designed to link K-12 classrooms, school sites, districts and counties statewide as well as connect K-12 with higher education throughout California. The University of California has the leadership role in overseeing the effort and administering funds for this project. The DCP provides access to high-speed, high bandwidth Internet that enhances the speed, quality, and reliability, of on-line education materials. It allows teachers and administrators to participate in professional development and education leadership courses as well as access and use of state-of-the-art teaching resources. The DCP shows promise for not only the manner in which educational technology can be used to address access issues, but also to demonstrate how California education entities can collaborate.

2. California Community Colleges

The Commission's 1997 report (*Coming of Information Age in California Higher Education*) noted that the California Community Colleges,

through the use of a U.S. Department of Commerce grant, had initiated a strategic planning process for technology. The result was the California Community Colleges 1996-97 Strategic Telecommunications Plan, which ultimately led to the development of the Technology and Telecommunications Infrastructure Program (TTIP/Technology I).

This first phase of planning resulted in funding which provided networks and resources for faculty, students and staff, allowed for connection of the California Community Colleges and California State University network, provided video conferencing capabilities at each college and district site, dual satellite downlink capability (analog and digital) for each college and district office, and library automation.

The second phase of the system-wide technology plan, California Community Colleges Technology II Strategic Plan, was undertaken in 1999. This phase of the plan is intended to focus on instructional delivery, with the articulated goals of: (1) student "access" – to include instruction and student support services, and (2) student "success" - in both educational and career goals. Elements of this plan include a detailed cost estimate for implementation, with a specific model for estimating cost, the Total Cost of Ownership funding concept (TCO).

The Technology and Telecommunications Infrastructure program has been funded in the State Budget Act as follows:

1996-1997 - $9.3 million
1997-1998 - $18 million
1998-1999 - $28 million
1999-2000 - $28 million
2000-2001 - $44.3 million
2001-2002 - $44.3 million

The proposed 2002-2003 Governor's Budget includes a reduction in TTIP funding of $19.8 million, providing approximately $28 million in the 2002-2003 fiscal year.

In the past, Legislative appropriations have provided for baseline levels for infrastructure, applications and training. Additional sources of funding have included the annual Budget Change Proposal (BCP) process, TTIP funds distributed via single year grant projects, and individual college purchases alone or through the use of statewide cooperative purchase agreements. In the second phase of its plan, the California Community Colleges recommend that 80% of funding needs be met through State resources, while 20% are met through public/private partnerships, which include federal and State grants, savings realized through cooperative purchase agreements, cash contributions and endowment gifts. More detailed information about the strategic plan can be found in the document *California Community Colleges Technology II Strategic Plan 2000-2005*.

At the local level, districts have utilized apportionment revenue, State instructional equipment block grant funds, federal grant money, local foundation resources and local private sector contributions of equipment and dollars to fund technology needs. These funds have been used for technological improvements such as the development and upgrading of computer laboratories, staff support and faculty training, and Internet wiring of classrooms.

Additional funding of $2.9 million has been received annually since 1998-99 for the development of the California Virtual Campus, a venture to deliver technology-mediated distance learning courses and programs from the California Community Colleges. These funds are an outgrowth of funding provided in 1997 to support a collaborative effort to create the California Virtual University, an effort led by the Governor's Office. A discussion of both these efforts is provided in a later section of this report. The status of the California Community Colleges efforts in developing the California Virtual Campus is profiled in two recent Community College reports; *California Virtual University: Legislative Progress Report, November 2001* and *Distance Education Report, Fiscal Years 1995-1996 through 1999-2000.*

3. California State University

As noted in the Commission's 1997 report, *Coming of Information Age in California Higher Education* the CSU has long been engaged in systemwide planning to facilitate the effective use of instructional technology. In March of 1996, the California State University Board of Trustees adopted the CSU's current strategic plan for the use of technology – the Integrated Technology Strategy (ITS), a planning/implementation process that guides the CSU's technology investments. CSU has identified achievement of four outcomes as its goals for the use of technology; personal productivity, excellence in learning and teaching, quality of the student experience, administrative productivity and quality.

The plan outlines eleven specific initiatives and projects as the means for achieving the outcomes identified within the ITS. CSU reports progress in meeting all its initiatives that include the following:

- Establishment of the Center for Distributed Learning, a statewide resource to support faculty and students' use of technology.
- Development of the multimedia repository initiative into the MERLOT project which provides a collection of learning modules, papers, tutorials and tools for faculty and students.
- Development and implementation of the Pharos System which supports web-based library access to CSU and other libraries throughout the CSU system

- Progress in the implementation of a Common Management Systems (CMS) on all campuses and the Chancellor's Office. Campuses across the system are at various phases of implementation of human resource, financial and student systems.
- Development and implementation on several campuses of a one-card system for payment, access, library and other identification/credit card-type applications.
- Development of the CSU Mentor system which provides web access for potential CSU students to information on applications, admissions, financial aid, and other related services.
- Establishment of systemwide baseline levels for access to technology and software, and in the process of establishing baseline levels for Training and Support
- Progress in outsourcing all new administrative systems to one private company.

Funding for the ITS has come from two sources. The build-out of the telecommunications infrastructure has been funded primarily through State legislative appropriations from the Higher Education Bond Act of 1998. The State will provide more than $260 million over a four-year period from this source. Other ITS initiatives have been funded through existing campus and Chancellor's Office funds allocated for technology investments, specifically through internal reallocation within existing technology budgets and State funding from the Partnership Agreement entered into by the CSU and the Governor.

These substantial State investment raised questions on the part of control agencies regarding specific indicators which would relate improvements in the technology infrastructure to overall gains in the cost effectiveness of operations, instruction and facilities utilization. In the fall of 1999, senior officers of the California State University, the Legislative Analyst Office and the Department of Finance agreed on a set of outcomes and measurements to demonstrate the cost effectiveness of the CSU ITS. The result has been the production by the CSU of three in a series of 10 annual reports to the California Legislature. These reports begin to provide the Legislature with some idea of the results of its substantial investment. The metrics identified are subject to change as the initiatives within the ITS change or as necessary to better asses the impact of the State's technology investments. Such an arrangement provides an ideal opportunity to modify metrics as necessary to assess the extent to which the ITS plans, goals, and its outcomes are aligned with statewide goals and needs.

The ITS might serve as a model for higher education in developing a technology plan that serve both the segments and statewide needs. The benefit of such a plan is that it presents comprehensively the goals of

educational initiatives utilizing technology and how these goals are to be met and measured.

Other than the capital outlay funds noted, CSU has not received specifically allocated funding from the Legislature for its ITS. CSU is requesting $14 million in budget year 2002-2003 to fund networking which was not funded by the 1998 bond.

Additional discussion and information on the ITS is available in the CSU publication *Integrated Technology Strategy Planning and Implementation Process* and in the three reports *Measures of Success (November 1999, 2000, and 2001)*.

4. University of California

While no strategic plan document exists for the University of California, several efforts to plan for and enlist the changes brought on by technology have been undertaken. An All-University conference, the Partnership Agreement with the governor, funding models for technology, and individual initiatives are all components of the University's planning. In addition, each UC campus employs a consultative process to develop and implement plans that meet its own priorities and needs. These efforts will likely prove to be critical components of statewide efforts in technology which affect not only the University, but the entire K-16 continuum of education. Nonetheless, a UC system wide technology plan with a clearly defined mission statement, goals, and funding strategies would clarify the goals and approach which the University is employing, as well as assist control agencies in evaluating and assessing the progress made through the state's support of the University's endeavors.

In March of 1997, The University held an *All-University Conference on Teaching and Learning Technologies and the Present and Future of the University of California* (AUC-TLT). Regents, Chancellors, Vice-Chancellors, faculty, administrators, staff, and students came together with the intention of increasing their understanding of how the University of California could take advantage of new technologies to advance their teaching mission. No formal recommendations were made as a result of conference discussions, however, the participants did identify elements for cultivating and sustaining innovation in teaching and learning within the University environment. At least one specific initiative, the UC Teaching Learning and Technology Center, emerged from the conference discussions. Additional information on the activity at the conference is available in an All University Conference Report which can be accessed at http://www.ucop.edu/ucophome/auc/index.html.

The Partnership Agreement, a four-year commitment on the part of the governor to provide the University with State funding linked to the meeting of specified accountability measures, identifies instructional technology as one of the four core areas of the budget to be funded from

the 1% increase to the prior year's State General Fund base. These costs include:

- Student computer labs.
- Classroom improvements for connection to campus networks and to support the use of classroom technology tools.
- Workstations and software for faculty and staff.
- Faculty grants for curricular development.
- Technological support for class websites and computer websites.
- Instructional infrastructure to support student and faculty e-mail and network access.
- Online access to databases, library materials and other instructional resources

Based upon a quantitative model it developed in 1997, the University estimated its cost for instructional technology in 1996-97 to be approximately $136 million. These costs had been funded by a combination of sources including the State, internal budgetary reallocations, one-time extramural grants, and gifts. Based upon then-current planning, enrollment, and cost levels, the university identified a minimum increase of $50 million over the 1996-97 base to provide an upgrade in instructional technology. The State began to fund this need in 1997-98 and by 2000-01 had provided $29.1 million in additional annual funding. A $12 million dollar increase proposed in the 2001-02 budget plan was ultimately eliminated in the May Revise as a result of concern for the State's worsening fiscal condition.

The University's 2002-03 budget plan proposes to increase permanent funding for instructional technology by $13.7 million; however, the Governor's Budget proposed for 2002-2003 does not support this increase. UC reports that of the State funds provided for instructional technology, about one-third is being spent to expand and upgrade computer labs, about 20% to add computers to classrooms, about 25% on curricular development and instructional support, and the balance on instructional infrastructure and online access to instructional resources.

The University had anticipated that Partnership funds over a four-year period would eliminate about two-thirds of permanent funding shortfalls identified in the area of instructional technology, and expected the remainder to be funded through a redirection of resources at the campus level. In spite of the funding provided, and exacerbated by the State's current fiscal condition's impact on anticipated funds, the University continues to identify a shortfall in the funding provided for instructional technology.

The University of California has also undertaken the following initiatives:

UC Teaching, Learning, and technology Center (TLtC) An effort which emerged from the 1997 AUC-TLT, the University of California Teaching, Learning and Technology Center (TLtC) attempts to provide systemwide visibility of campus and faculty efforts in the development and use of teaching and learning technologies. Intercampus collaborations in incorporating teaching and learning technologies are supported through a grants program which, in 2001, awarded $350,000. The UC Office of the President has earmarked $450,000 in grant support for 2002-2003. Additionally, the center hosts an interactive web publication which provides information and links to educational technology resources. The site also provides a database of faculty uses of technology to facilitate the sharing of instructional technology strategies and tools and to encourage collaboration on projects throughout the UC community.

UC College Prep Initiative The objective of the UC College Preparatory (UCCP) initiative is to offer college preparatory courses to California high school students though distance learning technologies. UCCP courses are acquired from existing curriculum providers (e.g., publishers/commercial firms, other educational institutions), developed by UC faculty, developed by high school faculty in consultation with UC faculty, and/or provided as a result of other partnerships. UC was unable to provide information on the number of students being served through this program, or the impact on these students' performance on Advanced Placement exams.

California Digital Library Founded in October 1997 the California Digital Library (CDL) is a collaborative effort of the ten campuses, organizationally housed at the University of California Office of the President, responsible for the design, creation, and implementation of systems that support the shared collections of the University of California. The CDL has also established partnership with the State Library. In 1997-98 the President allocated new funds from discretionary sources for the CDL. The initial University investment of $1 million was supplemented in the 1998-99 and 1999-00 budgets by new permanent State funds totaling $5.5 million for the CDL. The 2000-01 budget included $2.5 million devoted to expansion of the CDL collections and services. The UC budget 2002-2003 proposes to direct $1 million of library resources money to the California Digital Library.

Digital California Project: K-12 Statewide Network . UC has contracted with CENIC for implementation of a backbone infrastructure that ties the K-12 systems to the Internet2 (CANREN2) network in California. As previously noted, the UC has the leadership role in overseeing the project and administering the funds. The DCP provides access to high-speed, high bandwidth Internet that enhances the speed, quality, and reliability, of on-line education materials. It allows teachers and administrators to participate in professional development and education leadership courses as well as access and use of state-of-the-art teaching resources. The DCP shows promise for not only the manner in which educational technology

can be used to address access issues, but also to demonstrate how California education entities can collaborate.

A summary of overall funding for UC's technology efforts follows:

Numbers in Millions.

Item	97-98	98-99	99-00	00-01	01-02	02-03 (proposed)
Instructional Technology	4	28	21	29.1	29.1	29.1
UC College Prep Initiative	-	-	.7	3.7	8.4	8.4
Digital California Project	-	-	-	.32	.32	27.1
California Digital Library	1	1.9	7.1	7.3	8.2	8.4

5. Collaboration Between and Among K-12 and Higher Education

One of the primary benefits of educational technology is its ability to scale. Unlike the traditional delivery of education services, the number of learners can be increased while the costs for delivery remain constant or stable. A review of the history of strategic planning and technology initiatives within California's higher education segments reveals that there are similar needs identified and similar efforts underway to address those needs across all three segments of higher education.

Economies of scale and reduced duplication of effort in addressing those needs could result in more cost-effective delivery of services and more efficient accommodation of increasing enrollment demands. Indeed, California's higher education institutions have recognized these benefits as evidenced by successful efforts at technology collaborations *within* the systems. These include cooperative purchasing programs, sharing of information and library resources, and joint efforts at funding and developing networking infrastructure. Below are some of the collaborative efforts underway to date.

The California Digital Library (CDL)

The California Digital Library (CDL), founded in 1997, is a collaborative effort of the ten UC campuses. UC notes that the CDL effort has created a level of access to electronic library resources throughout the system at a substantial savings relative to the associated costs had these services been provided separately. Partnerships provide varying degrees of access be extended to various universities both within and outside California, as well as to the California State Library. Initially, the UC noted the negotiation of several major licenses for scholarly journals which included the flexibility to experiment with extending access to the California State University system, Community College campuses, and public and school libraries. Such arrangements provide an opportunity to

further extend access to a state supported electronic library resource to all of California's students.

Intersegmental collaboration on digital library services and systems offers attractive cost-effective benefits. Shared licenses to software systems and information databases offer one means of collaboration to reduce segments' library costs. Additional digital resources could be purchased cooperatively as well as offered using common standards and access for university segments' students and faculties, as means of further minimizing expenses for library services. Shared library websites and resource delivery systems would decrease support and staffing costs while simplifying users' access to library-based materials and catalogues.

Multimedia Educational Resource for Learning and On-line Teaching (MERLOT)

Since 1997, the CSU Center for Distributed Learning has provided free access to the Multimedia Educational Resource for Learning and On-line Teaching (MERLOT), a resource for sharing online learning materials, papers, tutorials and tools. By 1999 MERLOT had become a collaborative effort between CSU and a consortium of almost a hundred campuses. Currently, 21 systems and institutions of higher education across the country, including the California Community College System, are institutional partners of MERLOT. In kind-support and funding of $25,000 per partner support the MERLOT activities, while CSU continues leadership and responsibility for the operation. MERLOT is in the process of transitioning to a non-profit organization which will continue to be under the administrative guidance of the CSU.

Similarly to library resources, digital information systems and services provide opportunities and benefits for intersegmental collaboration in higher education. Shared software licensing, common standards and access, as well as collaborative information systems development and support, offer collaborative cost-benefits for information systems. Information services and systems might also be purchased under cooperative pricing agreements to further reduce software and hardware costs. Administrative software and systems might also benefit from the application of such collaborative and cooperative approaches. The growing use of technology in the traditional classroom has created critical needs for on-going training and support of faculty and staff. Potential collaborative opportunities include intersegmental standards, development, and cataloguing of jointly accessible faculty training and support resources.

Corporation for Education Network Initiatives in California (CENIC)

In California, collaboration has also occurred to create and maintain network infrastructure systems among higher education institutions. This network is in the process of being extended to K-12 as well. One such networking system was developed by Corporation for Education Network Initiatives in California (CENIC) as an initiative to support Internet2.

Another collaborative networking project is 4CNET, a networking system funded by the CSU and CCC segments.

In 1997 several technology businesses and California universities, including the University of California, came together and cooperatively funded CENIC a not-for-profit corporation with the mission to advance the use of communications technology in research and education at California's universities. The first step towards meeting this mission was the building of the California Research and Education Network (CalREN-2), an advanced services network that provides California's research and education community with access to the Internet 2. Owned and operated by CENIC, CalREN-2 became operational in October 1998, and supports the University of California system, and the California State University system, as well as several private institutions. Funding for the project was provided by the participating institutions, with additional seed funding provided by the National Science Foundation.

In the same timeframe during which CalREN2 was evolving, the State authorized funding for the California Community Colleges to collaborate with the California State University system on 4CNet, an initiative to expand the existing CSU network to include the CCC system. Today all CSU and CCC campuses, as well as other educational and public entities, are interconnected through 4CNet, which interconnects with CalREN-2 in both Northern and Southern California. 4CNet is managed and operated by a division of the California State University Chancellor's Office, with the California Community Colleges Chancellor's Office providing consultative leadership in the management and development of the network. Ongoing funding for 4Cnet is provided by both CSU and the CCC.

Digital California Project (DCP)

As previously noted, the latest expansion of the network is the Digital California Project (DCP), a multi-million dollar state-funded initiative which will provide for K-12 institutions to be linked to the larger Internet2 and the commercial Internet. CENIC is responsible for planning, implementing and managing the DCP network, while the University of California has a lead role in overseeing the project and administering the funds. A Program Steering Committee (PSC) composed of representatives from 16 education organizations spanning K-20 in California formulates and oversees the execution of specific strategies involved in planning, implementing and managing DCP. The PSC might be a viable venue for both higher education and K-12 to discuss their educational technology plans and strategies. Given the manner in which the DCP intersects with K-12 and higher education, it may be a venue for both to demonstrate to each other how they could collaborate on initiatives that might otherwise go forward separately. Such a process could serve as an informal quasi-statewide educational technology plan or authority.

In 1998, the California Community Colleges established the Foundation for California Community Colleges (FCCC), an auxiliary, private, non-profit corporation created to support educational technology needs by generating financial and in-kind support and reducing operational, equipment, and other costs, for the California Community Colleges. The Foundation maintains a Higher Education Cooperative Purchase Consortium comprised of more than 1800 participating colleges and universities (including several California institutions outside of the community colleges), and facilitates the development of partnerships between the community colleges and the private sector, including the negotiation of statewide cooperative purchase agreements.

California Statewide Master Agreement for Resources in Technology (C-SMART)

Since 1999, the California Department of Education has contracted with the Monterey County Office of Education to conduct the program, "California Statewide Master Agreement for Resources in Technology," (C-SMART). C-SMART also negotiates to create opportunities for California public schools and districts to participate in discount buying and licensing of instructional technology resources. In August 2001, FCCC entered into an agreement with C-SMART to extend its cooperative purchase program to include California public K-12 schools. The two organizations are jointly developing a new web site for California K-12 schools and districts. The Foundation funds the operation of its organization through the generation of self-supporting revenue from its activities, while C-SMART receives State funding to support its efforts. While currently in existence, the expanded usage of cooperative purchasing programs within higher education offers additional collaborative potential. In addition, a need exists to collaboratively catalogue the cooperative purchasing agreements and resources available to higher education segments in California.

The current economy and budget environment in California produces threats to quality, access and affordability of educational services in 2002-03 and beyond. Resources for large-scale initiatives will continue to be limited. At the same time, as a high-technology state and information industry, California requires increasing numbers of highly educated knowledge workers. Given these two circumstances, it is important that policymakers ensure that educational technology initiatives can scale sufficiently to meet the demand at marginal cost increases. Faced with resulting challenges and demands for quality instructional programs and technologies, adequate facilities, and knowledgeable faculty, higher education institutions must increasingly consider collaboration as a means of meeting student and program needs.

With current enrollment increases, tight budgets, and access issues in California, opportunities for intersegmental collaboration on technology-based initiatives may be increasingly appealing. Today's economic and

educational challenges may also provide impetus to overcome past collaborative obstacles, such as conflicting political agendas, competition for funds and students, and differing institutional missions and cultures. Intersegmental collaboration offers a tool for improving and maintaining quality, access and affordability of higher education in the state.

Each of California's public segments should be encouraged to access and identify how technology can best be utilized to complement their individual mission and goals, but the Commission would also urge that the State and segments emphasize, support and expect collaboration where there is a clear intersection of interests and needs.

Appendix C Summary of the California Postsecondary Education Commission's Distance Learning Survey

The California Postsecondary Education Commission (CPEC) surveyed approximately 454 postsecondary institutions for the purpose of gathering baseline information on distance learning programs in California. The information was collected from both public and private segments of higher education in order to inform the development of recommendations to state policy-makers regarding distance learning funding priorities.

The five sections of the survey are summarized in this appendix.

An electronic survey was submitted to each institution from the following segments:

- University of California
- California State University
- California Community Colleges
- Association of Independent California Colleges and Universities
- All California WASC accredited institutions.

Each institution was asked to complete the survey on-line in order for the responses to be were captured by a database. An overall response rate of 68% was achieved. For purposes of the survey, distance learning was defined as education or training courses delivered to remote (off-campus) location(s) via audio, video, or computer technologies. Courses conducted exclusively on campus are not included in this definition of distance education (although some on-campus instruction may be involved); courses conducted exclusively via correspondence are also not included (although some instruction may be conducted via correspondence). Distance education also did not include courses in which the instructor travels to a remote site to deliver instruction in person.

Below are the five categories of questions in the survey.

Current Status of Distance Learning Programs at your Institution: These questions related to the general state of your present distance learning program and any factors that either prevent or assist you in offering distance-learning courses.

Distance Learning Curriculum: These questions related to the number of students enrolled in distance learning programs, and the type and number of courses offered in a variety of academic subjects.

Distance Learning Student Demographics: These questions related to categorical data of the distance learning student population such as age, ethnicity, and attendance status.

Information Technology Infrastructure: These questions related to the way courses are delivered and the kind and number of components of infrastructure that supports the delivery.

Budget & Revenue Projections: These questions related to the current and projected costs of delivering distance education.

California Postsecondary Education Commission
Distance Learning Survey

Survey Section 1

1. Does your institution offer distance learning courses?

   There were 311 valid responses to this question. with 95 or 30.5% answering "YES" and 216 or 69.5% answering "NO".

2. Question #2 wanted to know the reasons why institutions could not offer or expand offerings for distance learning courses.

   17 respondents stated that they had insufficient information to answer the question. The following table shows the responses received for question #2 for the reasons listed in the survey with a response of 1 being a "Minor" concern and a 5 being a "Major" Concern.

Concern	Total Responses	Minor 1	2	Neutral 3	4	Major 5
2A. Program development costs	90	16 18%	17 19%	23 25%	20 22%	14 16%
2B. Concerns about course quality	87	14 16%	20 23%	22 25%	19 22%	12 14%
2C. Inadequate IT infrastructure	88	20 23%	21 24%	17 19%	16 18%	14 16%
2D. Restrictive federal, state and local policies.	89	36 40%	23 26%	16 18%	9 10%	5 6%
2E. Faculity workload	90	7 8%	20 22%	25 28%	23 25%	15 17%
2F. Legal issues	88	19 22%	23 26%	27 31%	11 12%	8 9%
2G. Other concerns not listed	26	1 4%	0 0%	1 4%	5 19%	16 62%

3. This section of the survey focused on where distance learning courses that were in use were developed. It appears likely from the data that institutions selected multiple categories.

   - **15** respondents said that they had **insufficient information** to respond to the question.
   - **90** respondents said that the courses they offered were **developed by their own institution in the regular academic curriculum area.**
   - **46** respondents said that their distance learning courses were **developed by their non-state supported extended education group.**

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- **31** respondents said that they were using courses **developed by other institutions** of higher education.

- **39** respondents said that they **developed courses in a collaborative effort** with another institution.

- **37** respondents were using courses **developed by a commercial vendor**.

- **12** respondents said that their courses came from **other sources.**

4/5. Questions 4 & 5 compared course completion information for distance learning versus other traditional course offerings.

Type of enrollment	Total Response	Response by %				
		>90%	80-90%	60-80%	<60%	Don't Know
Distance Learning	82	22	16	29	11	4
Regular Courses	87	17	16	37	3	14

6. 81% of the 95 institutions that responded to question #6 said that they evaluate their distance learning program on a regular basis and 19% said that they did not.

7. How do institutions assess student performance in distance learning courses? It appears from the data that institutions use multiple techniques for student assessment, with "on-line" assessment being the most common.

Type of Assessment	Number Using
Pen and Pencil	47
Proctored Exam	56
Mail or FAX test	34
On-line	80
Telephone or Video	12
Do not evaluate	2
Other method	20

8. 88% of the 110 institutions responding to question #8 said that they plan to expand distance learning programs while 12% said that they do not expect to expand distance learning programs.

9. Question #9 looked that the basic technology infrastructure used in distance learning programs. Respondents could check more than one response. The number of institutions using various types of infrastructure were.

California Postsecondary Education Commission
Distance Learning Survey

Survey Section 2

1. What percentage of courses are only available as distance learning courses?

   There were 94 responses to this question, with 12 respondents saying that they didn't have sufficient data to respond. Overall there are very few courses that are offered as distance learning only. The grouped frequency distribution for the remainder of the responses was:

% Range	Number of Responses	Percent in Range
0%	47	58%
1%	22	27%
2%	2	2%
3-10%	4	5%
11-15%	2	2%
16-50%	2	2%
51-100%	3	4%

2. Can students complete degrees or certificates by taking only distance learning courses?

   There were 96 responses to this question with 67% (62) responding "NO" and 33% saying "YES". Four (4) institutions had insufficient information to answer the question.

3. Question 3 in this section sought the distribution of students. types of courses and level of degrees offered. The following table shows the total results for this question.

Course	# Resp	#Stud	# Crse	AA	BA	MA	PhD	HS	AP	Cert	Cont	Voc	Adult
Ag Sci & Bus	3	577	9	6	0	0	0	0	0	0	0	0	0
Education	16	2899	206	6	6066	284	60	0	0	5	22	0	0
Engin & Rel Tech	4	119	145	1	62	0	0	0	0	0	0	0	0
Engl Language/Lit	26	2603	232	213	21	0	0	0	0	13	0	0	0
Foreign Lang/Lit	5	286	24	9	0	0	0	0	0	12	0	0	0
Health –Prof Sci	22	2942	145	26	9	38	0	5	0	0	0	1	0
Family Sci	7	541	58	4	3	0	0	0	0	0	0	0	0
Law/Legal	9	352	61	6	17	0	84	0	0	1	3	0	0
Lib Arts	23	2904	182	26	119	0	0	0	0	0	0	0	0
Lib Science	9	407	69	7	0	0	0	0	0	0	0	0	0
Marketing	13	557	58	29	22	21	0	0	0	2	0	0	0
Math	9	9216	58	20	24	12	0	0	0	0	0	0	0
Architecture	0	0	0	0									
Military Tech	7	872	18	6	6	0	0	0	0	0	0	0	0
Parks/Recreation	2	57	31	5	0	0	0	0	0	0	0	0	0
Personal Growth	6	417	10	14	6	0	0	0	0	0	0	0	0
Philosophy	15	1523	90	21	31	6	0	0	0	0	4	0	0
Physical Sci	14	1480	81	30	15	15	0	0	0	0	0	0	0
Protective Svcs	2	93	3	3	0	0	0	0	0	10	0	0	0
Psychology	24	7238	156	239	32	1	0	0	0	0	0	0	0
Area EthnicCult	4	284	12	2	7	0	0	0	0	0	0	0	0
Pub Admin	2	61	11	2	0	0	0	0	0	0	0	0	0
Soc Science	26	8174	253	309	197	313	0	0	0	0	0	0	0
Vis Perf Arts	10	1193	36	449	125	0	0	0	0	6	0	0	0
Other (34)	18	2106	256	58	163	151	111	0	0	1	1	1	14
Other(35)	12	388	102	41	29	76	0	0	0	0	0	0	0
Other (36)	4	496	19	43	16	25	5	0	0	0	0	0	0
Biology	15	1571	50	32	2	0	0	0	0	0	0	0	0
Bus Mgmt	32	7254	510	47	216	130	0	0	0	18	5	6	0
Communication	14	1108	40	15	22	2	0	0	0	0	1	0	0
Computer Info Sys	26	12871	294	123	158	102	0	0	0	12	0	4	0
Conservation	1	40	40	4	0	0	0	0	0	0	0	0	0
Construction Trades	1	10	2	2	0	0	0	0	0	0	0	0	0
Total Responses	381	381		173	98	52	12	2	2	15	10	6	4

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California Postsecondary Education Commission
Distance Learning Survey

Survey Section 3

1. Do you collect demographic information on students enrolled in your distance learning program?

   There were 97 responses to the question. Fifty-three (53) respondents (55%) said that they had insufficient information to answer the question.

   The "YES" responses for demographic data collected were:

Type	Number of Responses	Percent
1A. Ethnicity	33	34%
1B. Gender	44	45%
1C. Age	38	39%

2. Question 2 was designed to gather ethnicity data for distance learning students. Given the large number of "insufficient information" responses to question 1, the accuracy of the data in this question is suspect. Therefore, we are reporting total numbers stated in each group and not calculating a percentage distribution.

   There were ninety (90) total responses with sixty-nine (69) respondents saying that they had "insufficient information" to answer the question.

Ethnicity	Number of Responses	Frequency
2A. White	21	1258
2B. Black	20	155
2C. Amer Indian	15	23
2D. Asian or Pacific Islander	20	232
2E. Hispanic	19	292
2F. Other Race	16	85
2G. Multiracial	2	6

3. Question 3 in this section sought the distribution of students by gender. Eighty-eight institutions responded with 50 stating "insufficient information". The reported distribution by gender is as follows:

Gender	Number of Responses	Frequency	Percent
3A. Female	38	2,395	63%
3B. Male	38	1,498	40%

4. Question 4 was designed to determine distance learning students enrolled by age group. Fifty-eight (58) of the respondents stated that they had insufficient information to answer the question. Following is the grouped frequency distribution for age.

Age Group	Number of Responses	Frequency	Percent
4A. Under 18	11	42	2%
4B. 18-29	25	1193	42%
4C. 30-39	26	771	27%
4D. 40-49	26	665	24%
4E. 50+	22	145	5%

5. Question 5 asked for a portion of the students that were dissatisfied with the distance learning program. Only 15 institutions responded, therefore this data appears to be unreliable.

6. Question 6 sought data on the distribution of students by education level.

   - One (1) institution reported 22 students in the elementary/secondary level.
   - Thirty-four (34) institutions reported having 22,190 students at the undergraduate level for an average of 594 students per institution.
   - Twenty-six (26) institutions reported having 3,187 students at the graduate level for an average of 123 students per institution.
   - Two (2) institutions reported having 54 students at the adult/GED/ESL level for an average of 27 students per institution.
   - One (1) institution reported having 185 students at the professional/continuing education level.
   - One (1) institution reported having 113 students who were military personnel.
   - There were 101 students reported who were in corporate skills enhancement programs.
   - Data reported from international students appears unreliable.

7. Question 7 asked for information on actual Headcount and projected Headcount enrollment by year. The data reported was as follows:

Years	Number of Responses	Frequency	Average per Institution
Actual 97-98	41	40,153	979
Actual 98-99	53	53,758	1,014
Actual 99-00	61	72,007	1,180
Proj 00-01	52	71,175	1,369
Proj 01-02	47	81,677	1,737

The percentage of increase year by year in distance learning enrollment is:

97-98 to 98-99	3.5% (Actual)
98-99 to 99-00	16% (Actual)
99-00 to 00-01	16% (Projected)
00-01 to 01-02	26% (Projected)

8. Question 8 asked for information on actual FTE student and projected FTE student enrollment by year. The data reported was as follows:

Year	Number of Responses	Frequency	Average per Institution
Actual 97-98	23	1,220	53
Actual 98-99	25	2,022	81
Actual 99-00	29	3,169	109
Proj 00-01	35	8,824	252
Proj 01-02	27	9,936	368
Proj 02-03	24	10,499	437

The percentage of increase year by year in distance learning FTE enrollment per reporting institution is:

97-98 to 98-99	52% (Actual)
98-99 to 99-00	34% (Actual)
99-00 to 00-01	131% (Projected)
00-01 to 01-02	46% (Projected)
01-02 to 02-03	19% (Projected)

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California Postsecondary Education Commission
Distance Learning Survey

Survey Section 4 – Information Technology Infrastructure

1. What are the number of distance learning courses offered by technology category in the following years?

   The top number in each row indicates the number of institutions that gave a response other than "Blank" or "zero". The second number is the total number of courses offered by those institutions that responded with a number greater than zero. The bottom number (shown in **bold**) is the average number of courses offered for those institutions that responded with a number greater than zero.

Technology Category	Actual 1997-1998	Actual 1998-1999	Actual 1999-2000	Proj 2000-2001	Proj 2001-2002	Proj 2002-2003
1A. Internet/WWW/AOL/E-mail	43	47	59	73	63	54
	740	875	1263	3480	4001	5041
	17.2	**18.6**	**21.4**	**47.7**	**63.5**	**93.35**
1B. CD-ROM	1	1	4	5	6	8
	9	9	386	1047	1052	63
	9	**9**	**96.5**	**209.4**	**175.3**	**7.9**
1C. Non-interactive Broadcast/Satellite/Microwave or Institutional TV	5	17	18	19	16	13
	334	1031	1191	1162	1071	1075
	66.8	**60.6**	**66.2**	**61.2**	**66.9**	**82.7**
1D. Interactive Broadcast/Satellite/Microwave or Institutional TV	10	13	5	14	22	18
	286	375	606	681	446	375
	28.6	**28.8**	**121.2**	**48.6**	**20.3**	**20.8**
1E. Audio/Video Tape	12	14	14	16	13	14
	248	273	255	293	292	257
	20.7	**19.5**	**18.2**	**18.3**	**22.5**	**18.4**
1F. Other	3	3	3	3	3	3
	56	56	59	91	91	88
	18.7	**18.7**	**19.7**	**30.3**	**30.3**	**29.3**

2. On a scale of 1 to 5 (with 1 being a serious or major issue and 5 being a minor issue). how do the following Information Technology infrastructure issues impact your institution's ability to provide distance learning programs?

   Approximately 89 institutions responded to this question. The average responses for each IT category were:

   - Overall Network Security **2.75**
   - Network Speed **2.79**
   - Availability of computers for student use **2.56**
   - Availability of network connections off-campus **2.59**
   - Software to develop and administer courses **2.98**
   - Cost to develop infrastructure **3.65**

California Postsecondary Education Commission
Distance Learning Survey

Survey Section 5 – Budget and Revenue Projections

1. What is your estimated annual budget for distance learning programs for the past three years and projections for the next three years? (If you are unable to disaggregate the costs, please estimate totals.)

   The top number in each row indicates the number of institutions that gave a response other than "Blank" or "zero". The second number is the total budget in the category offered by those institutions that responded with a number greater than zero. The bottom number (shown in **bold**) is the average category cost offered for those institutions that responded with a number greater than zero.

Cost Category	Actual 1997-1998	Actual 1998-1999	Actual 1999-2000	Proj 2000-2001	Proj 2001-2002	Proj 2002-2003
Program Admin. Costs	7 $1.106M **$158K**	8 $1.300M **$100K**	10 $1.670M **$167K**	13 $1.901M **$146K**	17 $2.140M **$126K**	13 $1.831M **$141K**
Course Curriculum Development	5 $32K **$6K**	7 $215K **$31K**	9 $320K **$36K**	14 $506K **$36K**	15 $580K **$39K**	12 $460K **$38K**
IT Infrastructure Costs	5 $219K **$44K**	7 $426K **$61K**	8 $385K **$48K**	14 $627K **$45K**	15 $647K **$43K**	11 $633K **$58K**
Student Support Services	3 $33K **$11K**	2 $9K **$4.5K**	3 $12K **$4K**	4 $72K **$18K**	5 $93K **$19K**	5 $128K **$26K**
Faculty Support/Training	4 $120K **$30K**	7 $121K **$17K**	7 $156K **$22K**	6 $164K **$27K**	10 $455K **$45.5K**	7 $470K **$67K**
Other	3 $182K **$61K**	2 $153K **$76.5K**	2 $157K **$78.5K**	4 $183K **$46K**	5 $140 **$28K**	4 $141K **$35K**

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There were a number of institutions that were unable to disaggregate their cost data. The number of respondents, totals and average per institution for this group are as follows:

Cost Category	Actual 1997-1998	Actual 1998-1999	Actual 1999-2000	Proj 2000-2001	Proj 2001-2002	Proj 2002-2003
Total Costs	11 $2.117M $192K	12 $2.857M $238K	13 $3.158M $243K	23 $4.705M $205K	23 $5.557M $242K	21 $5.352M $255K

2. Overall, do revenues received in each budget year offset the cost to offer your distance learning courses?

   Over 80 institutions responded to this question. Forty-one (41) said that they had insufficient information to answer the question. The other institutions responded as follows:

	Actual 1997-1998	Actual 1998-1999	Actual 1999-2000	Proj 2000-2001	Proj 2001-2002	Proj 2002-2003
Yes	24	27	30	32	35	36
No	10	13	13	10	10	9

3. What percentage (%) of your project annual revenue for distance education courses comes from the following funding sources?

   The responses to this question were insufficient to complete a meaningful tabulation. See detailed data tabulation responses.

4. In the 1999-2000 budget year, what was the average cost per student ($/Student) to deliver distance learning courses vs. traditional on-campus courses?

   Seventy-nine (79) institutions stated that they had insufficient information to answer this question.

   Seven (7) institutions answered the question with the following overall averages:

   Average Cost for Distance Learning student: **$12,061**
   Average Cost for On-campus student: **$14,047**

5. In the 1999-2000 budget year, what was the average cost per unit of instruction ($/Unit) for distance learning courses vs. traditional on-campus courses?

   Seventy-four (74) institutions stated that they had insufficient information to answer this question.

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Fourteen (14) institutions answered the question with the following overall averages:

Average Cost for Distance Learning Unit:	**$155**
Average Cost for On-campus Unit	**$59**

6. On a scale of 1 to 5 (with 1 being a serious or major issue and 5 being a minor issue), how do the following funding issues impact your institution's ability to provide distance learning programs?

Twenty-two (22) institutions answered that they had insufficient information to answer this question.

For those responding, the average responses for each category were:

Category	Responses	Average
• Cost to Students	74	**2.36**
• Infrastructure Costs	74	**3.32**
• Professional Development Costs	74	**3.63**
• Intellectual Property Costs	72	**2.58**
• Program Development Costs	75	**3.72**
• Other	4	**N/A**

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

THE California Postsecondary Education Commission is a citizen board established in 1974 by the Legislature and Office of the Governor to coordinate the efforts of California's colleges and universities and to provide independent, non-partisan policy analysis and recommendations on higher education issues.

Members of the Commission

As of July 2002, the Commissioners representing the general public are:

Alan S. Arkatov, Los Angeles; Chair
Carol Chandler, Selma; Vice Chair
Lance Izumi, Sacramento
Kyo "Paul" Jhin, Malibu
Guillermo Rodriguez, Jr., San Francisco
Evonne Seron Schulze, San Diego
Olivia K. Singh, San Francisco
Howard Welinsky, Burbank
Melinda G. Wilson, Torrance

Representatives of California education systems are:

Irwin S. Field, Beverly Hills; appointed by the Office of the Governor to represent the Association of Independent California Colleges and Universities;

Vacant; appointed by the Board of Governors of the California Community Colleges;

Susan Hammer, San Jose; appointed by the California State Board of Education;

Anthony M. Vitti, Newport Beach; appointed by the Trustees of the California State University; and

Odessa P. Johnson, Modesto; appointed by the Regents of the University of California.

The two student representatives are:

Rachel Shetka, Santa Barbara
Vacant

Of the 16 Commission members, nine represent the general public, with three each appointed for six-year terms by the Office of the Governor, the Senate Rules Committee, and the Speaker of the Assembly. Five others represent the major systems of postsecondary education in California. Two student members are appointed by the Office of the Governor.

Functions of the Commission

The Commission is charged by the Legislature and the Office of the Governor to "assure the effective utilization of public postsecondary education resources, thereby eliminating waste and unnecessary duplication, and to promote diversity, innovation, and responsiveness to student and societal needs."

To this end, the Commission conducts independent reviews of matters affecting the 2,600 institutions of postsecondary education in California, including community colleges, four-year colleges, universities, and professional and occupational schools.

As an advisory body to the Legislature and Office of the Governor, the Commission performs specific duties of planning, evaluation, and coordination by cooperating with other State agencies and non-governmental groups that perform those other governing, administrative, and assessment functions. The Commission does not govern or administer any institutions, nor does it approve, authorize, or accredit any colleges and universities.

Operation of the Commission

The Commission holds regular public meetings throughout the year at which it discusses and takes action on staff studies and takes positions on proposed legislation affecting education beyond the high school level in California. Requests to speak at a meeting may be made by writing the Commission in advance or by submitting a request before the start of the meeting.

The Commission's day-to-day work is carried out by its staff in Sacramento, under the guidance of Interim Executive Director Robert L. Moore, who is appointed by the Commission.

Further information about the Commission and its publications may be obtained from the Commission offices at 1303 J Street, Suite 500, Sacramento, California 98514-2938; telephone (916) 445-7933; web site www.cpec.ca.gov.

Priorities for California Educational Technology Funding: A Report in Response to AB 1123

Commission Report 02-10

ONE of a series of reports published by the California Postsecondary Education Commission as part of its planning and coordinating responsibilities. Summaries of these reports are available on the Internet at http://www.cpec.ca.gov. Single copies may be obtained without charge from the Commission at 1303 J Street, Suite 500, Sacramento, California 95814-2938. Recent reports include:

2001

01-5 *The Changing Role of Higher Education in Preparing California's Teachers* (May 2001)

01-6 *Needs Analysis for the Chaffey Community College District Fontana Center: A Report to the Governor and Legislature in Response to a Request from the Board of Governors of the California Community Colleges* (July 2001)

01-7 *Examining Standardized Testing in the Context of University Admissions* (August 2001)

01-7a *California and Mexico: The Realities and Possibilities for Higher Education* (November 2001)

2002

02-01 *Fiscal Profiles, 2001: The Eleventh Annual in a Series of Factbooks About the Financing of California Higher Education* (January 2002)

02-02 *Needs Analysis for the West Hills College at Lemoore, West Hills Community College District: A Report to the Governor and Legislature in Response to a Request from the Board of Governors of the California Community Colleges* (February 2002)

02-03 *Student Transfer in California Postsecondary Education* (February 2002)

02-04 *California Colleges and Universities, 2002: A Guide to California's Degree-Granting Institutions and to Their Degree, Certificate, and Credential Programs* (April 2002)

02-05 *The California Postsecondary Education Commission's Public Agenda: Priorities for Action* (April 2002)

02-06 *Guidelines for Review of Proposed University Campuses, Community Colleges, and Educational and Joint-Use Centers* (April 2002)

02-07 *Performance Indicators of California Higher Education, 2001: The Eighth Annual Report to California's Governor, Legislature, and Citizens in Response to Assembly Bill 1808 (Chapter 741, Statutes of 1991)* (April 2002)

02-08 *The Condition of Higher Education in California, 2002* (May 2002)

02-09 *The Otay Mesa Higher Education Center: An Off-Campus Facility of the Southwestern Community College District: A Report to the Governor and Legislature in Response to a Request from the Board of Governors of the California Community Colleges* (June 2002)

02-10 *Priorities for California Educational Technology Funding: A Report in Response to AB 1123* (July 2002)